Rainier Manual

Rainier-4a, 4a1v, 8a1v, 4d, 4d1v, 8d1v

July, 2007

Avitech Rainier Software V1.00

AVITECH

Overview

- Introduction
- Inside the box
- Rainier Types
- Hardware connection
- Cascading
- Communication
- Rainier Differences
- Rainier Software V1.00
- SCP Keypad
- AAP
- Updating firmware

AVITECH

Introduction

- The Rainier series was designed for stand alone operation with control over RS232
- Two units can fit in a single rack unit space for a maximum of 8 video inputs and one multimedia input
- Rainier-4d or 4d1v can take in either four composite or SD-SDI inputs with a single DVI output
- Rainier-4a or 4a1v can take in four composite inputs with a single DVI output
- SD-SDI units can also de-embed one stereo audio pair for meter displays and each audio source can also be output via AES audio
- Models with the 1v extension also has a single scaleable DVI input for use with VGA/DVI/Component inputs
- An RJ50 GPI terminal block adapter is provided for tally or loading presets
- Rainier series is NOT compatible with MCC-8000, VCC-8000 or ACC-8000 series modules

AVITECH

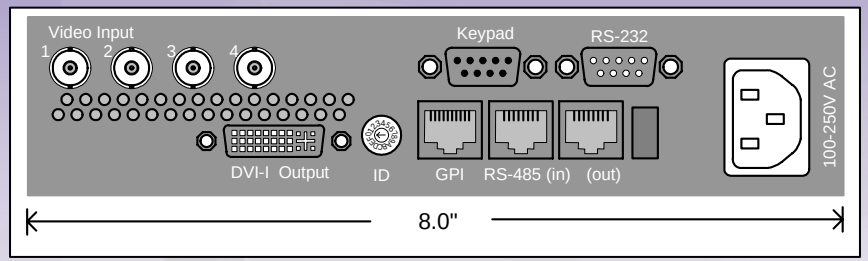
Inside the Box

- You should receive the following with each Rainier unit
  - Rainier Module
  - USB to RS232 converter with driver CD
  - CD with the Rainier Software and Quick Start Guide
  - DVI to VGA adapter (2x with units that have 1v extension)
    - One is used for VGA input (for Rainier models with 1v extension) and one can be used for VGA output
  - RJ45 and DVI looping cables (Only when you purchase two or more units)
  - RJ50 GPI terminal block
  - Standard US power cable (US customers only)
  - Blank panel (Optional for single units)
  - Rack mount kit (Optional to combine two units)

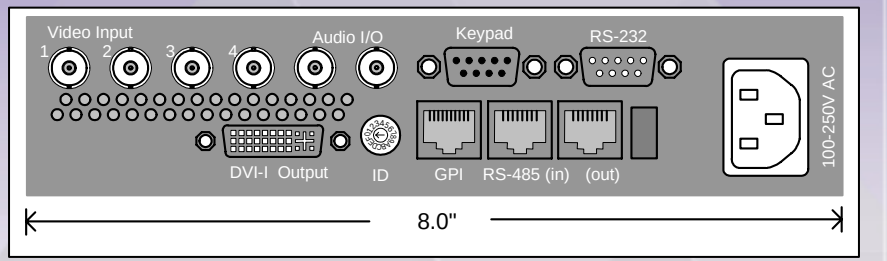
AVITECH

Rainier Types

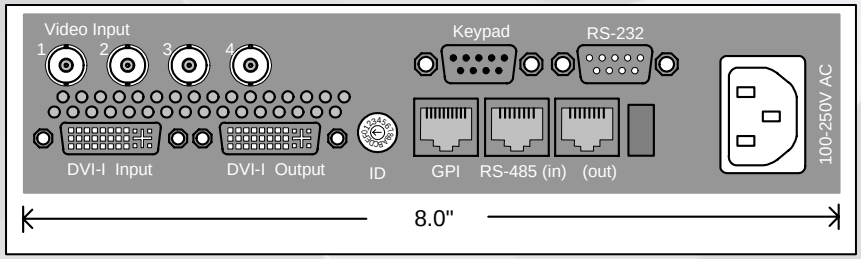
Rainier-4a



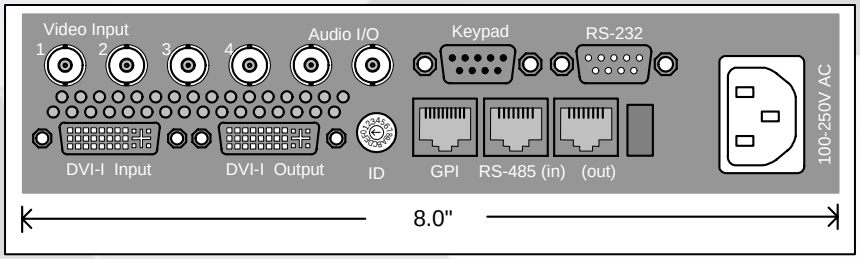
Rainier-4d



Rainier-4a1v



Rainier-4d1v

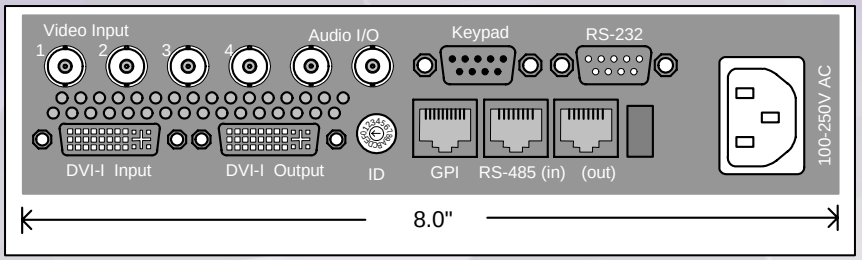


AVITECH

Hardware Connection

Some connectors may not be installed – Model dependant

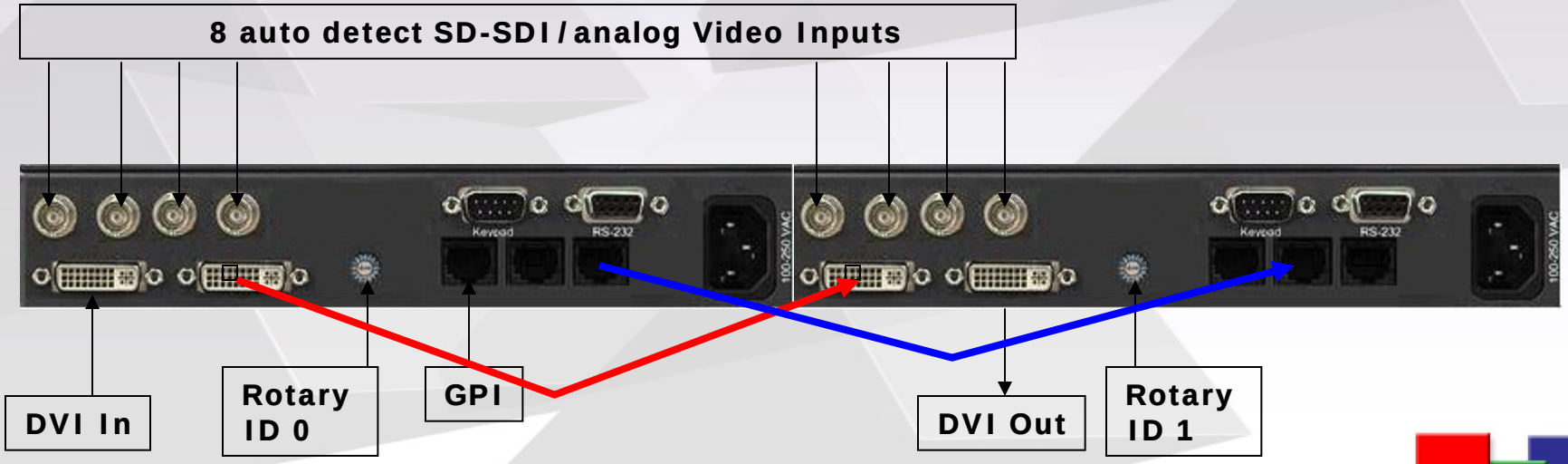
- Four BNC's for video input
- Left DVI for multimedia input (Rainier-4a1v, 8a1v, 4d1v, 8d1v)
- Right DVI for output to display
- Rotary dial to assign unique addresses in systems with two or more units
- Male DB9 for keypad
- Female DB9 for RS232 from computer
- RJ50 for GPIO
- RS485 IN for serial cascading input
- RS485 OUT for serial cascading output
- AES in for audio cascade
- AES out for audio cascade



AVITECH

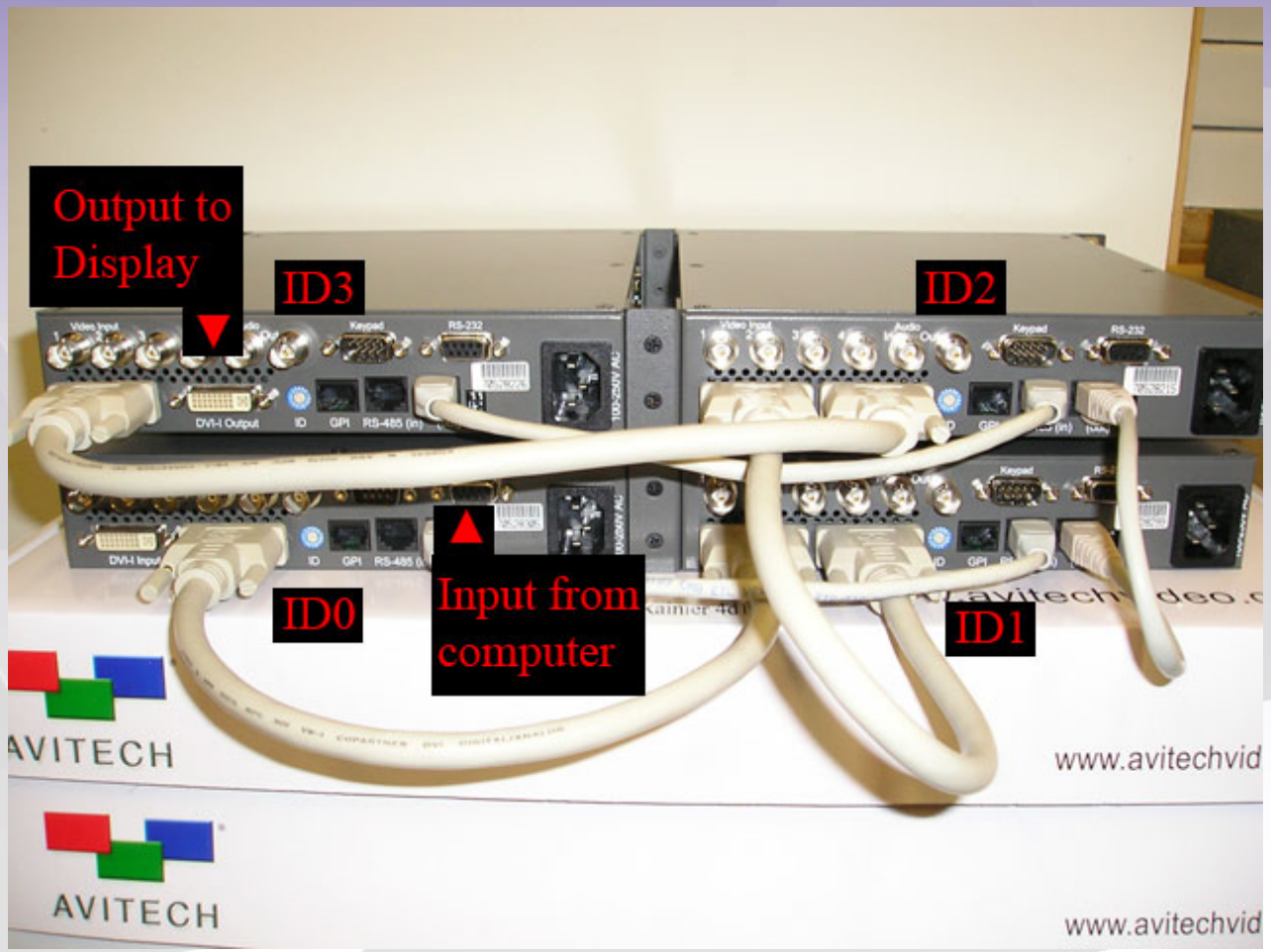
Cascading

- To cascade two modules together, make sure each Rainier has a unique rotary ID, in the example below ID 0 and ID 1
- Take the DVI out from ID 0 into DVI in of ID 1
- Take the RS485 out from ID 0 into RS485 in of ID1
- Take the DVI out from ID 1 to the display (use DVI to VGA adapter for displays with VGA input
- Take the control PC and connect to RS232 of ID 0
- For applications using multimedia input, connect to DVI in of ID 0



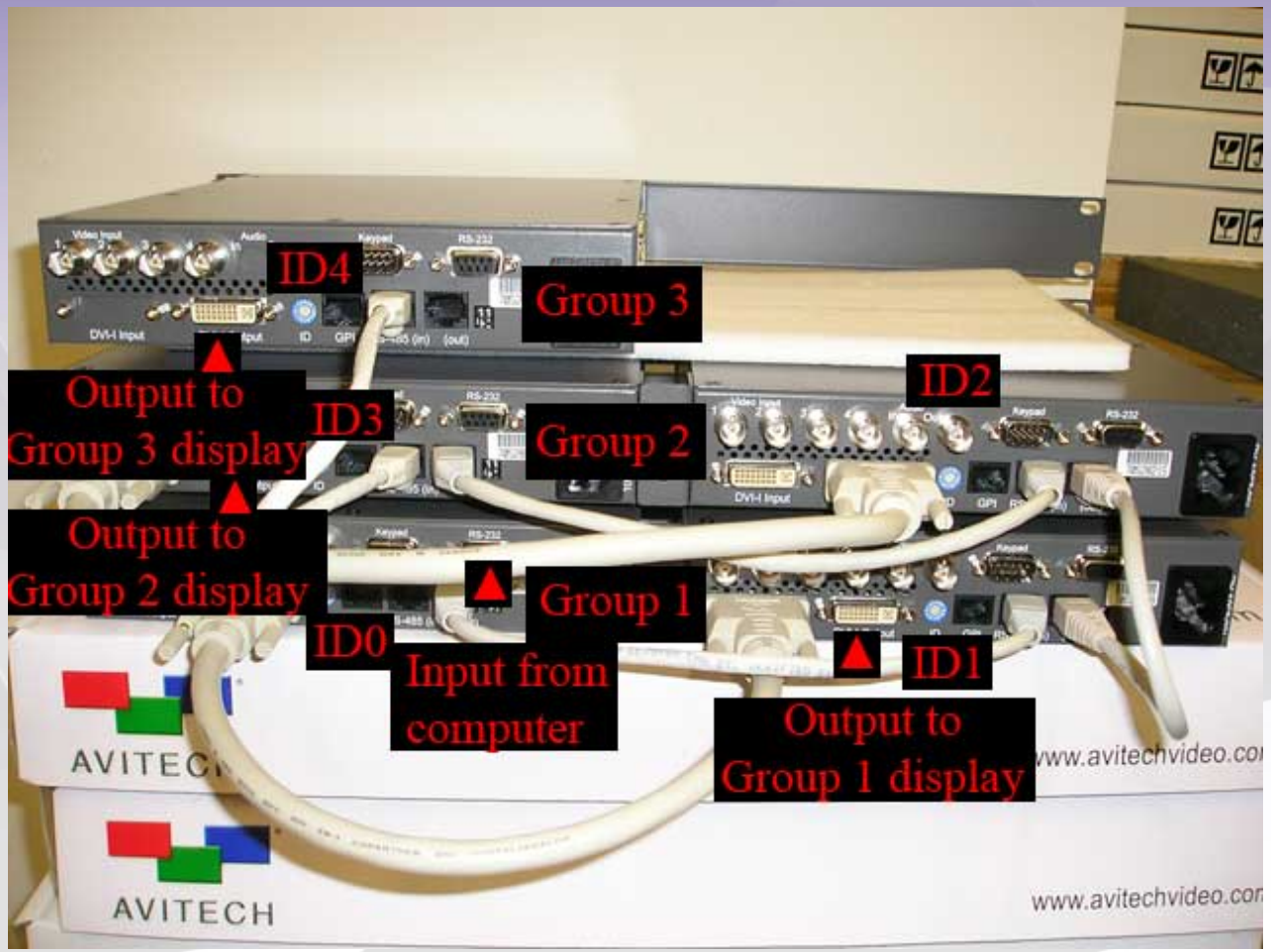
AVITECH

Example 1: 2xRainier-8d1v (1 Group)



AVITECH

Example 2: 2xRainier-8d1v and 1xRainier4a (3 Groups)



AVITECH

Communication

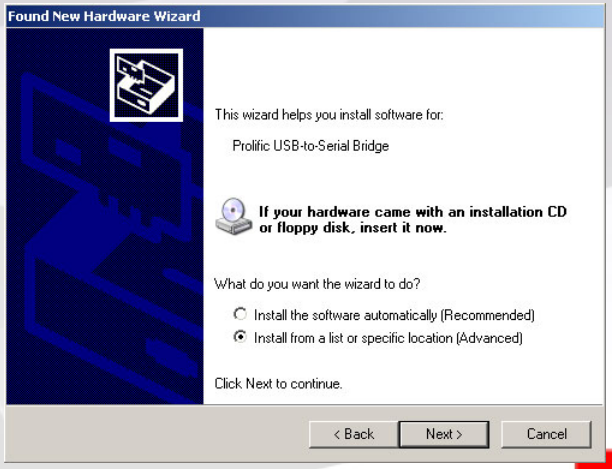
- The Rainier series communicates via RS232 via a USB to RS232 converter, which is provided for communication with the module. After inserting the converter into a USB port in your computer, plug and play will detect the new device and you will need to load the drivers for the converter from the CD to make the device work. Afterwards, make sure the new Com port is set to 1 and then run the Rainier Software.

AVITECH

Installing USB to RS232 Adapter

- Connect the USB end of the adapter to a USB port on your computer
- Windows will find the new device and will prompt to connect to Windows Update
- Select No not this time and then Next
- Load the CD into the computer
- At the next menu, select Install from a list or specific location and then Next

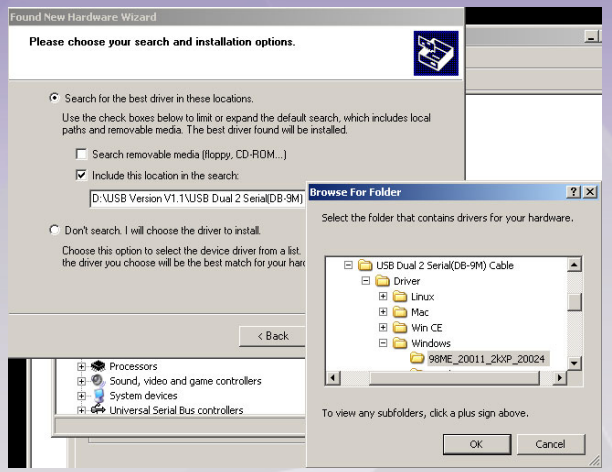
Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission).
Read our privacy policy
Can Windows connect to Windows Update to search for software?
Yes, this time only
Yes, now and every time I connect a device
No, not this time
Click Next to continue.
< Back
Next >
Cancel

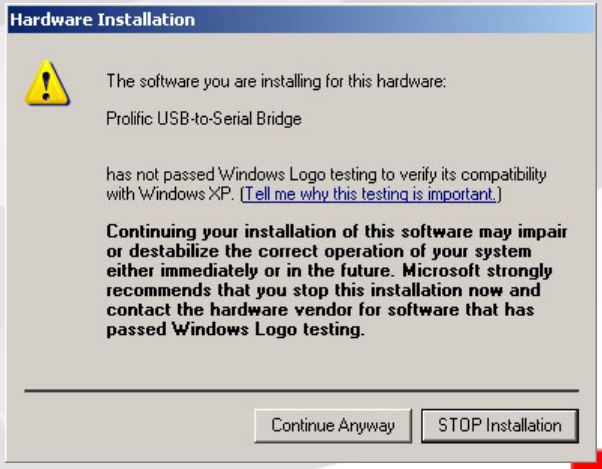

Found New Hardware Wizard
This wizard helps you install software for:
Prolific USB-to-Serial Bridge
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

AVITECH

Installing USB to RS232 Adapter Conti.

- Locate the drivers on the CD under D:\USB Version V1.1\USB Dual to Serial(DB-9M) Cable\Driver\Windows\98 ME_20011_2kXP_20024
- Select OK and then Next to continue
- Select Continue Anyway at the warning

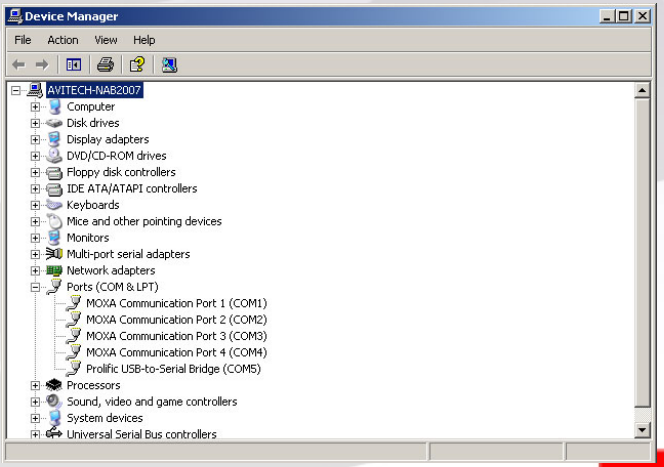

Found New Hardware Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
D:\USB Version V1.1\USB Dual 2 Serial(DB-9M)
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. the driver you choose will be the best match for your hard
< Back
Processors
Sound, video and game controllers
System devices
Universal Serial Bus controllers
Browse For Folder
Select the folder that contains drivers for your hardware.
USB Dual 2 Serial(DB-9M) Cable
Driver
Linux
Mac
Win CE
Windows
98ME_20011_2kXP_20024
To view any subfolders, click a plus sign above.
OK
Cancel


Hardware Installation
The software you are installing for this hardware:
Prolific USB-to-Serial Bridge
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

AVITECH

Installing USB to RS232 Adapter Conti.

- Select Finish to complete the installation of the USB to RS232 Adapter
- You should now see a Prolific USB to Serial Bridge (Com #) in the Device Manager



AVITECH

Rainier-4a/4d vs. Rainier-4a1v/4d1v

Rainier - 4a/4d

- Designed for quad split or full screen only (no scaling)
- With DVI, it will auto-detect the resolution of the display and choose the resolution that is most suitable
- If the resolution is too high or if using VGA, it will output 1024x768 @ 60 Hz
- Supports the following resolutions (800x600, 1024x768, 1280x720, 1280x768, 1366x768, 1400x1050, and 1440x900)
- Labels, borders, full screen, Tally, output resolution / frequency can be changed using Rainier Software or the ASCII protocol

Rainier- 4a1v/4d1v

- Scaling up to 816x465 pixels for NTSC video and 816x558 for PAL video before going to full screen
- Output resolution needs to be manually set using Rainier Software or the ASCII protocol
- Supports the following resolutions (800x600, 1024x768, 1280x720, 1280x768, 1366x768, 1400x1050, 1440x900, 1600x1200, 1680x1050, 1080p, and 1920x1200)
- Has a DVI input that can be used for cascading (no sizing) or for multi-media input (sizeable)

Rainier – 4d / 4d1v (No audio support with Rainier – 4a / 4a1v)

Auto detect embedded audio and can output audio via AES/EBU BNC connector

AVITECH

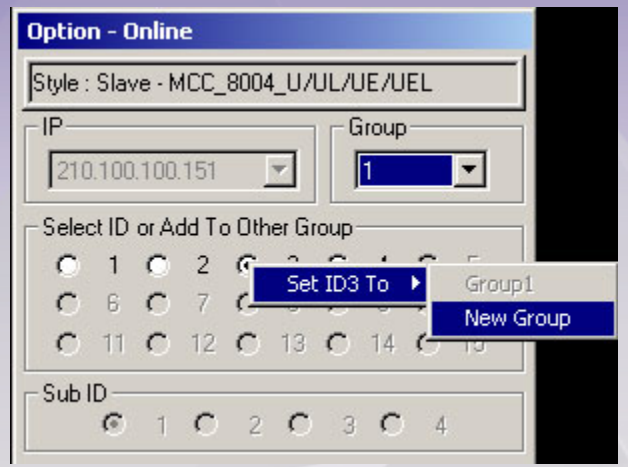
Rainier Software V1.00 - Initialization

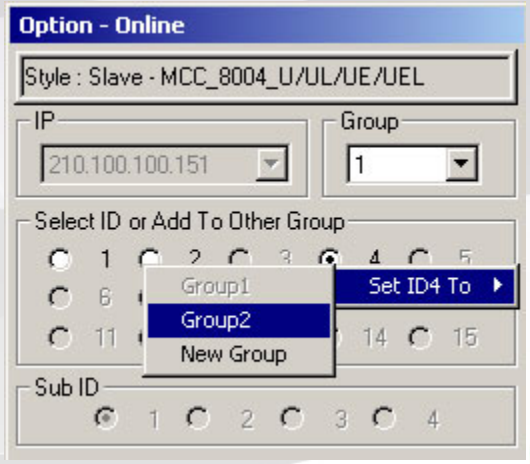
- Communication Mode
  - Make sure Serial Port is checked and the Mode is set to All
  - Select OK to initiate communication, the software will go out and look for all modules that are connected

AVITECH

Creating New Groups

- By default, the Rainier Software will combine all available modules into one large group, to divide up the modules, right click on the module you wish to add to the new group and select Set ID# To—New Group
- Repeat for all additional modules (you can either add additional modules to the new group or create additional groups)
- To switch between the different groups, use the Group drop down box
- Afterwards, close the Rainier software and select Yes when prompted to save to flash
- Re-launch the Rainier Software to continue with the setup

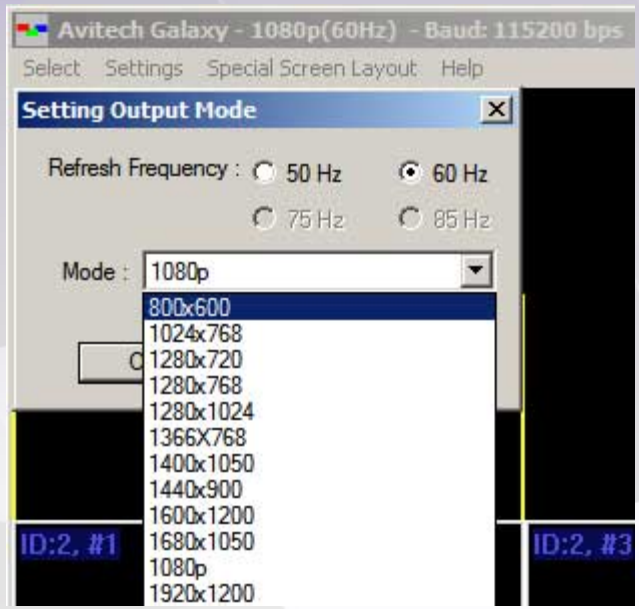




AVITECH

Rainier Software V1.00 - Output

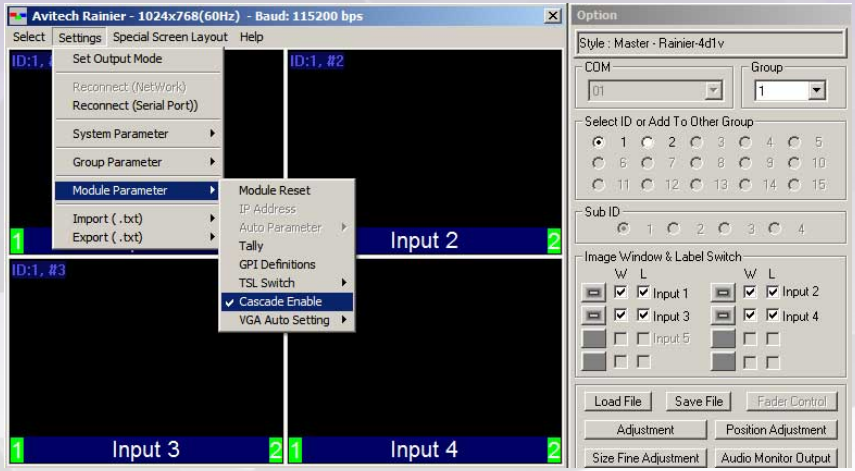
- The first thing to do after the Rainier Software connects to the module is to set the output resolution to match the display
- Select Settings—Set Output Mode and then select the frequency followed by the resolution under Mode
- Select Ok to finalize changes; afterwards, the output resolution will be displayed on the information bar



AVITECH

Rainier Software V1.00 – DVI Input

- By default the DVI input on the Rainier fills the entire screen behind the video windows (Rainier Cascade In Mode)
- To enable the DVI input as a scaleable window, select Settings—Module Parameter and then uncheck Rainier Cascade In Mode
  - **Note**: If you have multiple modules cascade in a single group, do this only for the first unit ID1
- After un-checking Rainier Cascade In Mode, a yellow window will allow users to adjust the position and size of the DVI input
  - **Note**: The DVI input does not have a border or label



AVITECH

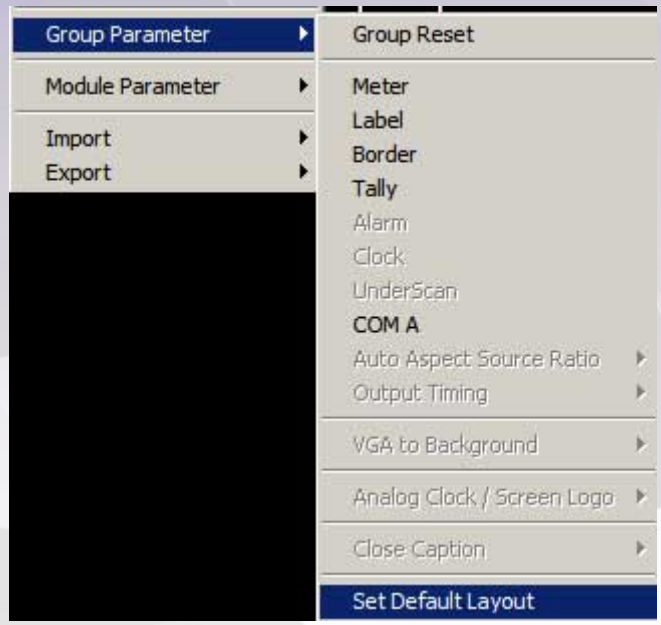
Rainier Software V1.00 – DVI Adjustment

- When using a VGA to DVI adapter with the Rainier series, there will be times when the image is not aligned in the window or the color is off, these situations call for the VGA Auto Setting feature which was designed to overcome these issues
- Select Settings - Module Parameter - VGA Auto Setting and then select Auto Image Adjustment to align the VGA image inside the window or Auto Image Gain to correct the color values
- **Note**: Some VGA to DVI cables will not work with the DVI input/output of the Rainier, we use a proprietary VGA to DVI adapter for this purpose

AVITECH

Rainier Software V1.00 – Set Default Layout

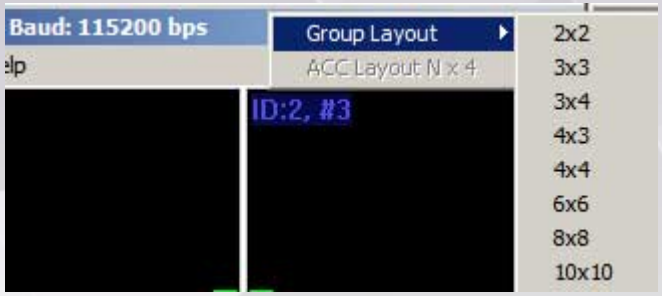
- If you have multiple units cascaded together, you can quickly show all the windows by selecting Settings—Group Parameter—Set Default Layout



AVITECH

Rainier Software V1.00 – Arranging Windows

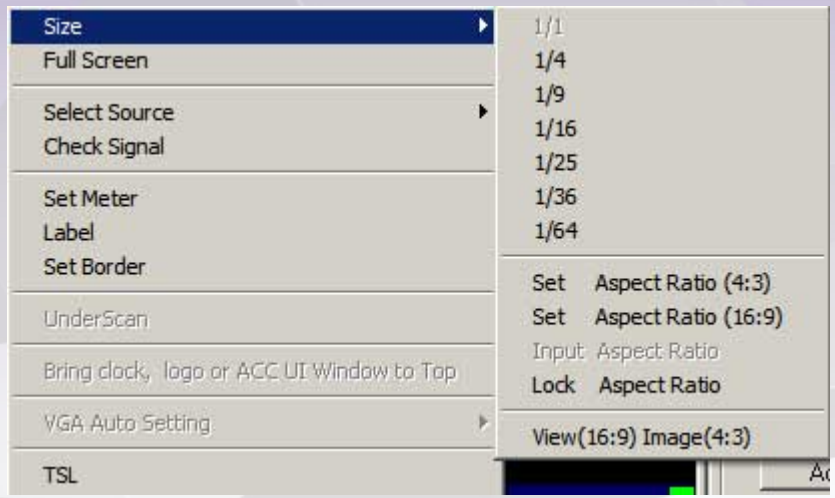
- To quickly setup the layout for your video windows, right click on the blue information bar to access the Group Layout menu



AVITECH

Rainier Software V1.00 – Resizing a Window

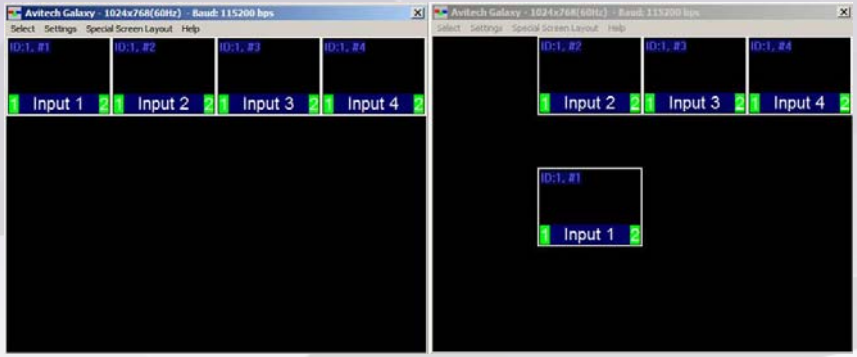
- To resize a single window to one of the preset sizes, right click on the window and select Size followed by the number, this option is not available for the scaleable DVI input
- You can manually resize a window by dragging the border of a window to the desired size, keep in mind that there is a scaling limitation for each window that limits the maximum scaleable size to 816 x 465 pixels for NTSC video and 816 x 558 for PAL video
- Alternatively, you can use the Size Fine Adjustment menu to adjust each window on a pixel by pixel basis, keep in mind that width increases in 16 pixel increments and height in 1 pixel increments



AVITECH

Rainier Software V1.00 – Repositioning a Window

- To reposition a window, drag the center of a window to a new position and it will update on the display
- Alternatively, you can use the Position Fine Adjustment feature in the Option menu to adjust the position of any window in a pixel by pixel basis, keep in mind that width increases in 16 pixel increments and height in 1 pixel increments



AVITECH

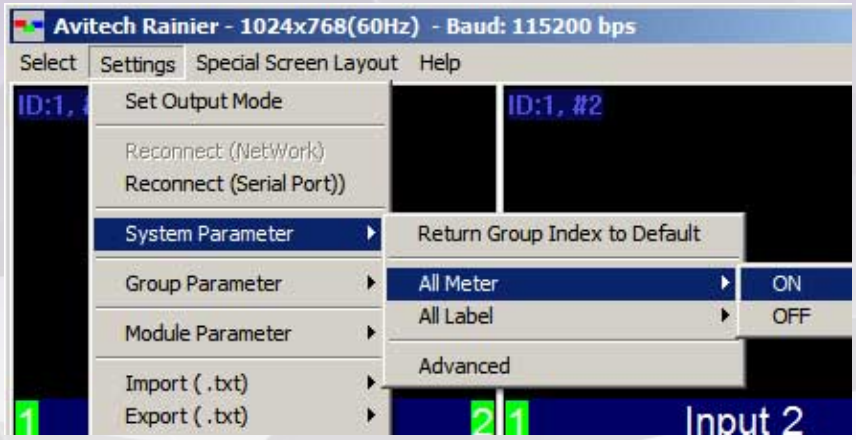
Rainier Software V1.00 – Quick Keys

- There are two quick keys in the Rainier Software that allow you to quickly bring a window to and from full screen mode and also swap the contents from one window to another
- To access the full screen quick key, move your cursor to the top right hand corner of a window until a capital F appears, click on the F and the window will maximize to full screen, repeat with the to return from full screen mode
- To access the swap window quick key, move your cursor to the bottom left hand corner of a window until a capital S appears, click on the capital S to select the source window and then click again at a destination window where you want to swap the contents of the source, this will swap all the contents and properties of the source window to the destination window

AVITECH

Rainier Software V1.00 – Turning on Labels/Audio Meters

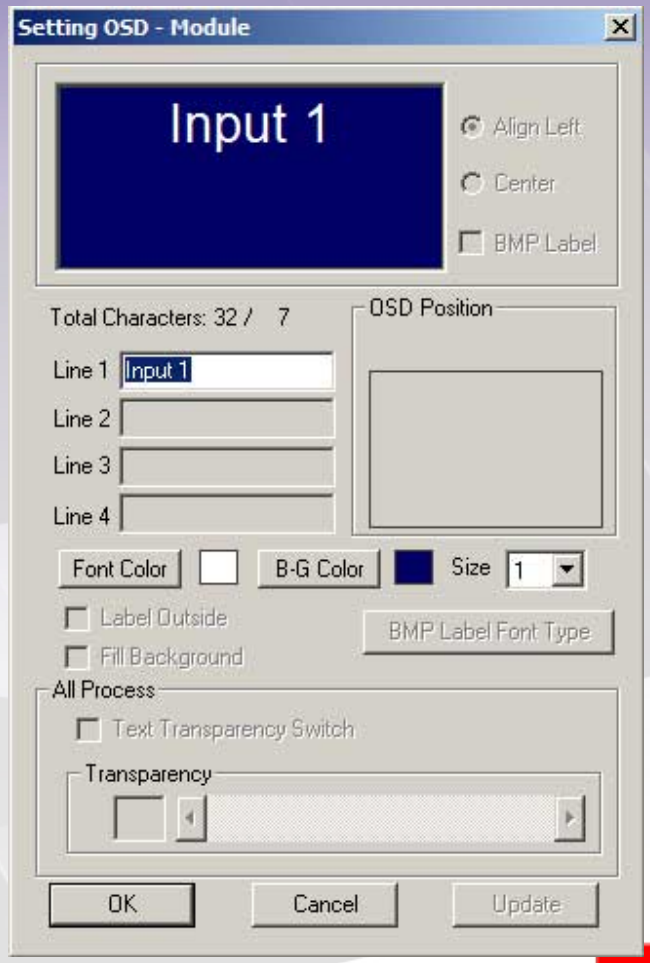
- To turn on all labels, select Settings - System Parameter - All Label—ON
- To turn on all audio meters, select Settings - System Parameter - All Meter - ON



AVITECH

Rainier Software V1.00 – Setting Label Properties

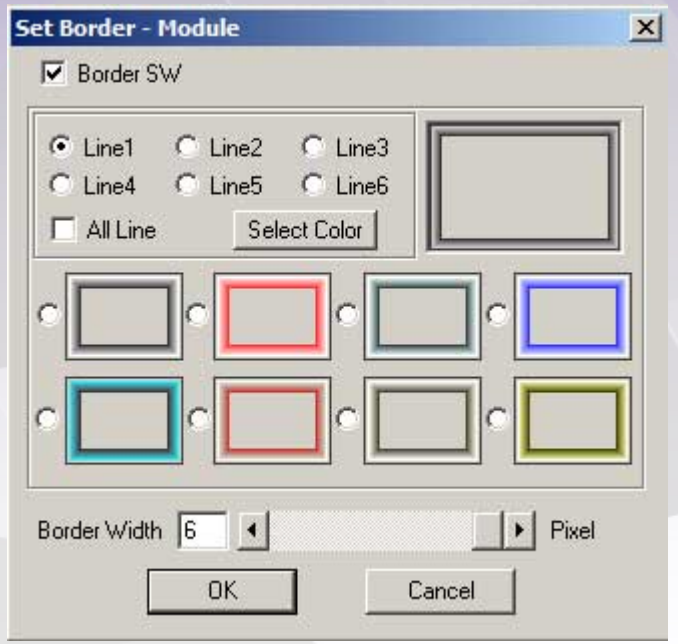
- Make sure to turn on labels (see previous page)
- Select Settings—Group Parameter—Label to adjust the Font Color, Background Color, and Font size for all labels in the group
- Right click on a window and select Label to enter in the text
  - **Note**: Each window supports one line of text up to 32 characters
  - **Note**: The DVI input does not display a label



AVITECH

Rainier Software V1.00 – Setting Border Properties

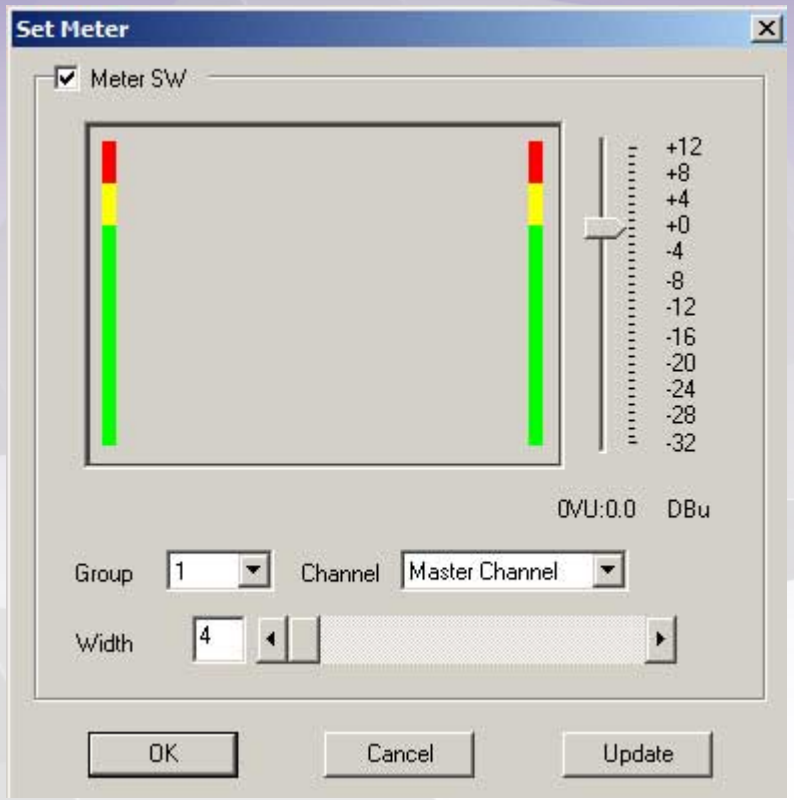
- Borders are turned on by default, to turn off the border, select Settings - Group Parameter - Border and then change the border width to 0
- This menu also allows users to change the border size and color for the entire group
- To change the border properties for an individual window, right click on the window and select Set Border then select the desired color and size
- **Note**: The DVI input does not display a border



AVITECH

Rainier Software V1.00 – Setting Audio Meter Properties

- Make sure audio meters are turned on (see slide 19)
- To change the Audio settings for the entire group, select Settings—Group Parameter—Meter
- The Rainier is capable of displaying embedded audio as VU meters inside the video window, embedded audio is divided up into four groups with a master and secondary channel for each group, users can display the left and right VU meter of either the master or secondary channel on the left and right side of the window just as the menu depicts
- To change the group or channel, users can select it from the drop down menu
- **Note**: When there is no audio detected, you will NOT see any VU meters



AVITECH

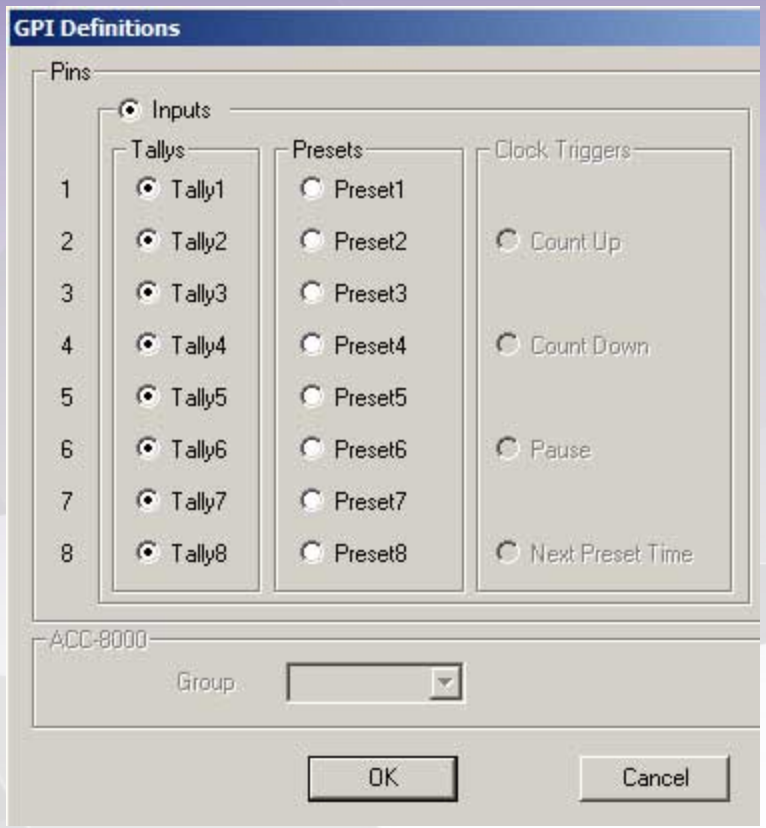
Rainier Software V1.00 – Outputting Audio

- There are four audio pairs on each Rainier 4d unit that can be output via AES through the audio out BNC connector
- To choose which input is being output:
  - From the Option menu, select the ID of the module from which to output audio
  - Select Audio Monitor Output from the Option menu
  - Select Check
  - Select the Processor (input source) to monitor
  - Select Update to apply changes and OK to save and exit

AVITECH

Rainier Software V1.00 – GPI

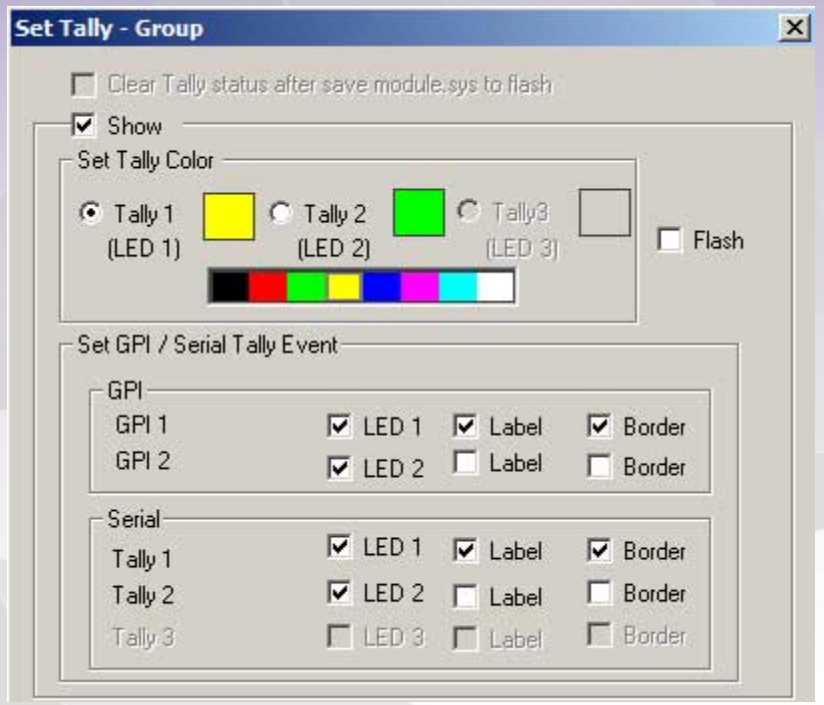
- There are 8 positions on the RJ50 to GPI terminal block that are assignable to either activate tally (two per video input) or to load presets, each pin can be assigned to only one task
- To assign what each GPI does, select Settings - Module Parameter - GPI Definitions
- Once you are done assigning tasks to each GPI, select Ok to finalize changes



AVITECH

Rainier Software V1.00 – Tally

- The GPI terminal block allows for a total of 8 inputs to activate tally, 2 per window
- Users can also use the serial port with ASCII, TSI, or TSL to activate the tally
- To change the appearance of the tally, select Settings - Group Parameter - Tally
- Settings that can be adjusted include tally color, label tally, border tally, and flashing tally



AVITECH

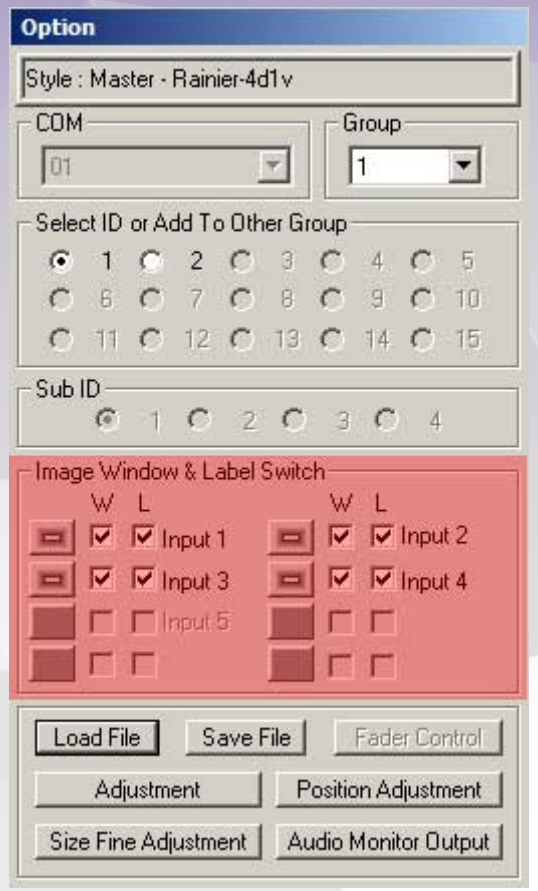
Rainier Software V1.00 – Window Adjustment

- To change the properties of an individual window you can right click on the window to access the Window Menu
  - **Size**: Allows users to change the size of a window
  - **Full Screen**: Maximizes the image to full screen
  - **Select Source**: Copes any source for the module to the selected window
  - **Check Signal**: Displays the video signal being fed into the selected window
  - **Set Meter**: Adjust audio meter properties for the selected window (applies only to Rainier-4d series)
  - **Set Label**: Adjust label properties for the selected window
  - **Set Border**: Adjust border properties for the selected window
  - **TSL**: Assign a TSL address for the selected window

AVITECH

Rainier Software V1.00 – Turn On/Off Window/Label

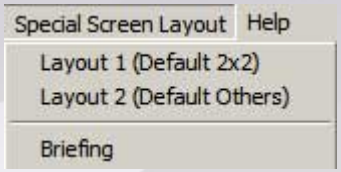
- The Option menu has two check boxes for each window that can be used to close a source window or turn off the label for the selected window
- To turn off a window or a label, find the box that represents the selected window and check or un-check the W or L box



AVITECH

Rainier Software V1.00 – Special Screen Layout

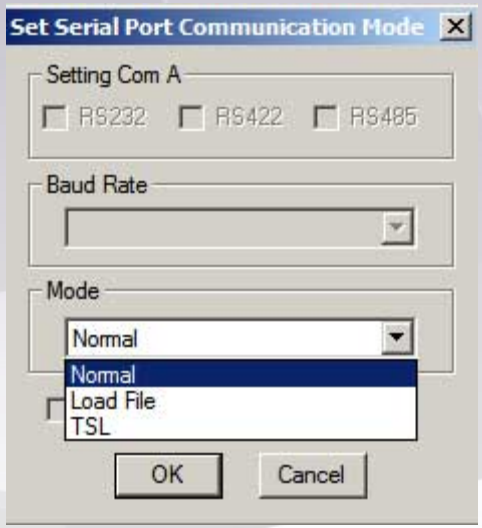
- There are three special screen layouts for Rainier that do quad split, rows or columns of four, and a timed slide show
  - **Layout 1 (Default 2x2):** Quad split mode
  - **Layout 2 (Default Others):** Rows or columns of four windows
  - **(Briefing):** Cycle between presets for a slide show effect



AVITECH

Rainier Software V1.00 – Com A

- There are three settings for the Com port on the Rainier series and all three can be used with the Rainier Software, users should select Normal for use with ASCII or TSI, Load File for use with the SCP keypad and TSL for use with TSL protocol
- **Note**: For TSI protocol, the initialization process is different so the same TSI protocol for other Avitech products may not function correctly with the rainier without additional changes
- After setting Com A, you will be prompted to close the Rainier Software and power cycle the module



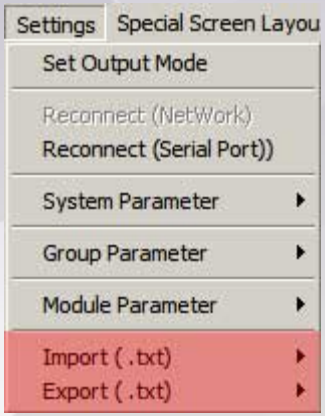
AVITECH

Rainier Software V1.00 – Export/Import Labels

This feature allows users to export labels to either a Microsoft Excel or text file to be edited externally

To Export and Import Labels:

- First export the file to XLS or TXT to view the file structure
- Edit the text in the file starting with Group 1, Module 1
- When you are done entering labels, save the file and then import it using the Rainier Software
- The onscreen labels will automatically update



AVITECH

Rainier Software V1.00 – Saving to Flash

- There are two times you need to use the save to flash feature. The first time is after you have created the master layout you want the unit to load when the unit is power cycled. The second time is after you are done saving presets and you want to save all the presets that were created into the internal flash memory of the module. If this is skipped, the module will lose all the presets that were created.
- To Save to Flash:
  - Select Load File or Save File from the Option menu
  - Select Update to Module Flash

    Or
  - Close the Rainier Software and select Yes when prompted to save

AVITECH

Rainier Software V1.00 – Saving a Preset

- All the presets you create get stored in the module and not in the computer that is running the Rainier Software. In order to write all the presets into the internal flash memory of the module after creating all the presets, you will need to save to flash.
- To save a preset:
  - Configure the layout to how you want the output to look
  - Select Save File from the Option menu
  - Enter a unique name for the preset and select OK to save
    - (if you plan to use a key pad, use the numbers 0-9 for your preset names)
    - (if you plan to use GPI, use the numbers 1-8 for your preset names)
    - The file extension GP# will be automatically added to the file name
  - Repeat for all additional presets
  - After you are done creating presets, load the file that you want to be the master layout, which gets loaded when the unit is powered on
  - Close the Rainier Software and select Yes when prompted to save to flash

AVITECH

Rainier Software V1.00 – Backing up Presets

- Connect to the module with saved presets with the Rainier Software
- Select Help—Backup All Information
- This will backup all saved presets and system configuration files to c:\Avitech_VCC\Backup\XXXX#_#
  - Warning: Everything in the Backup folder will be erased, if you have previously backed up presets, they will all be written over when you backup presets again, if you want to keep the old presets, please move the entire Backup folder to a temporary directory (e.g. c:\temp)
- This will create the following directories:
  - c:Avitech_VCC\Backup\
  - c:Avitech_VCC\Temporary
- Close the Rainier Software

AVITECH

Rainier Software V1.00 – Restoring Presets

- Connect to the module with the Rainier Software
  - Some versions of the Rainier Software will detect that the module does not have presets and will prompt the user to restore the presets the first time it connects
- To manually restore the presets, select Help - Restore Module Information
  - You should see a progress bar showing the preset being loaded into the machine
- To complete the backup process, shut down the Rainier Software and select NO when prompted to save
- Power cycle the module and then connect with the Rainier Software to verify that the saved presets are stored in the flash memory

AVITECH

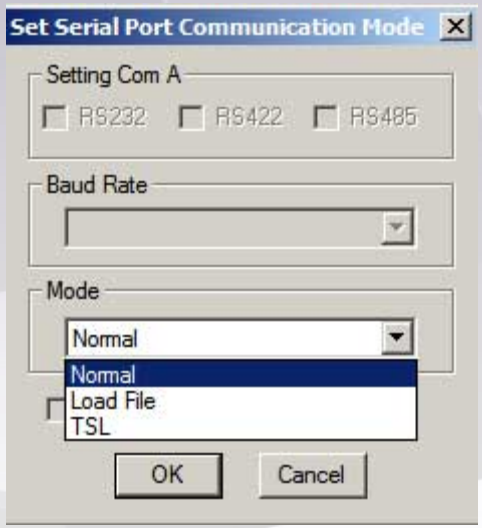
Rainier – SCP Keypad Integration

- The numerical SCP keypad (optional) can be used in to load up to 10 presets saved in the flash memory of the Rainier
- This allows the user to quickly recall presets without having to use a computer
- When using the SCP keypad, make sure the SCP keypad is the only serial device plugged into the Rainier, make sure to remove the RS232 serial cable

AVITECH

Rainier – Preparing for Keypad

- To prepare the Rainier for use with a keypad, create up to ten presets with the file name 0~9 for up to ten groups
- Change Com A to Load File Mode by selecting Settings - Group Parameter - Com A
- Select OK to finalize changes, you will be prompted to shutdown the Rainier Software and Save to flash
- Power off the module and plug in the SCP keypad
  - Note: If you need to connect again using the Rainier Software, you must first disconnect the SCP keypad
- Power on the module



AVITECH

Rainier – SCP Communication

- To initiate communication with the Rainier using the SCP keypad, do the following keystrokes in the following order “*” “1” “Enter”
- To load a preset, first select the group number followed the by preset number
  - “1” “0” : loads the preset 0.GP1
  - “1” “1” : loads the preset 1.GP1
  - “1” “2” : loads the preset 2.GP1
  - “1” “3” : loads the preset 3.GP1
  - “2” “0” : loads the preset 0.GP2
  - “2” “1” : loads the preset 1.GP2
  - “2” “2” : loads the preset 2.GP2
  - “2” “3” : loads the preset 3.GP2
- To adjust the multi-media DVI input
  - “.” “*” “Enter” : Auto Image Adjustment
  - “.” “/” “Enter” : Auto Image Gain
- To end communication with the Rainier enter the following keystrokes “*” “0” “Enter”

AVITECH

Rainier – Avitech ASCII Protocol

- The serial port on the rainier can also be used to interface with a third party controller for control over RS232
- Make sure to set Com A to normal, and to remove the SCP keypad if that is connected
- To test the ASCII commands, use HyperTerminal with the following settings:
  - Bits Per Second: 115200
  - Data Bits: 8
  - Parity: None
  - Stop Bits: 1
  - Flow Control: None

AVITECH

Rainier – AAP List

- ZC GGMMPP B[order]/L[abel] RRRGGGBBB NDC(no dim color): This command is used to set the border and label background color
- ZF GGMMPP 1(on)/0(off): This command is used to maximize a window to full screen and back
- ZM GGMMPP ##(resolution number): This command is used to change the resolution of a module, the resolution number refers to the list of resolutions the Rainier supports
- ZP GGMMPP L[oad]/S[ave] filename.GP#: This command is used to load a saved preset or save the current layout to a preset
- ZT GGMMPP 1[Tally1]/2[Tally2] 1(on)/0(off) #(color index number): This command is used to turn on or off the tally for a window or all the windows in a group, the color index number is a list of colors the tally can be
- ZX GGMMPP “label text” (include quotation) #(Font size 1~4): This command is used to change the label text and font size for a single window or for an entire group
- ZJ GGMMPP I[mage]/G[ain]: This command applies to only Rainier-4a1v, 4d1v, 8a1v and 8d1v and is used to auto adjust the image or gain value of the multimedia DVI input

AVITECH

Rainier – AAP Glossary

Resolution Number

- 1 : 800 x 600 @ 60Hz
- 2 : 1024 x 768 @ 60Hz
- 15 : 1280 x 720 @ 60Hz
- 22 : 1280 x 768 @ 60Hz
- 9 : 1280 x 1024 @ 60Hz
- 20 : 1360 x 768 @ 60Hz
- 35 : 1400 x 1050 @ 60Hz
- 45 : 1440 x 900 @ 60Hz
- 10 : 1600 x 1200 @ 60Hz (4a1v & 4d1v only)
- 40 : 1680 x 1050 @ 60Hz (4a1v & 4d1v only)
- 26 : 1920 x 1080 @ 60Hz (4a1v & 4d1v only)
- 36 : 1920 x 1200 @ 60Hz (4a1v & 4d1v only)

- 42 : 800 x 600 @ 50Hz
- 31 : 1024 x 768 @ 50Hz
- 30 : 1280 x 720 @ 50Hz
- 32 : 1280 x 768 @ 50Hz
- 29 : 1280 x 1024 @ 50Hz
- 38 : 1360 x 768 @ 50Hz
- 34 : 1400 x 1050 @ 50Hz
- 46: 1440 x 900 @ 50Hz
- 39 : 1600 x 1200 @ 50Hz (4a1v & 4d1v only)
- 41 : 1680 x 1050 @ 50Hz (4a1v & 4d1v only)
- 28 : 1920 x 1080 @ 50Hz (4a1v & 4d1v only)
- 37 : 1920 x 1200 @ 50Hz (4a1v & 4d1v only)

- **GGMMPP**
  - GG group number 01, 02, 03…etc.
  - MM module number 01, 02, 03…etc.
  - PP processor number 01, 02, 03, 04

- Tally Index Number
  - 1. Black.
  - 2. Red
  - 3. Green
  - 4. Yellow
  - 5. Blue
  - 6. Pink
  - 7. Light Blue
  - 8. White

AVITECH

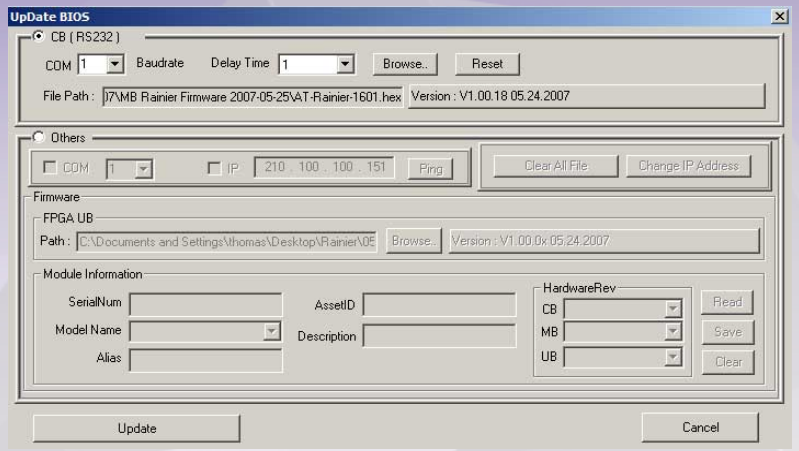
Rainier – AAP Example

1. “*” “1” “Enter” <used to initiate communication with the Rainier>
2. ZC 010000 border 000255000 <set group 1 border color to dim green>
3. ZF 010101 1 <maximize window 1 on module 1 in group 1 to full screen>
4. ZF 010101 0 <resume window 1 on module 1 in group 1 back from full screen>
5. ZM 010000 10 <set all modules in group 1 to 1600x1200 at 60hz>
6. ZP 000000 load 1.GP1 <load preset 1 for all modules>
7. ZT 000000 2 1 6 <turn on tally 2 for all windows and set the tally color to pink>
8. ZX 000000 "Input 1“ <set all labels to display Input 1>
9. ZJ 020000 G <Implement auto gain for all windows in group 2>
10. “*” “0” “Enter” <terminate communication with the Rainier>

AVITECH

Updating Firmware

The Rainier series each has two firmware that can be update:
The Control Board (CB) and the Upper Board (UB) firmware



To Update the CB Firmware:

1. Power off the Rainier and use a small flat head screw driver to flip the left dip switch down
2. Power on the Rainier
3. Run the Rainier Software
4. Select Others
5. Select CB and then Rainier
6. Select Browse and locate the CB firmware on your hard drive (AT-Rainier-1601.hex)
7. Select Update to start the update
8. When the update completes, power off the Rainier and flip the left dip switch up
9. Power on the Rainier

To Continue to Update the UB Firmware:

1. Select Others from the Update Bios menu
2. Select Rainier and then UB
3. Select Browse next to UB to locate the firmware (AT-Rainier-UB.rbf)
4. Select Update to start the update

AVITECH

Technical Support

- If you have any questions regarding the information provided in this guide, please call our technical support line at 425-885-3863 or our toll free line at 1-877-AVI-TECH
- To contact the author of this document, please send an email to Thomas@avitechvideo.com

AVITECH